

# Extended Hydrologic Outlook

## December 7, 2021

- The Climate Prediction Center (CPC) is forecasting below normal rainfall for December through February.
- La Niña is present and is likely to continue through the winter 2021-22 (~90% chance) and into spring 2022 (~50% chance during March-May).
- Atlantic Multidecadal Oscillation (AMO) is currently in the warm phase:
  - Average annual inflow to Lake Okeechobee is nearly 50% greater during the warm phase compared to the cold phase

# U. S. Seasonal Outlooks

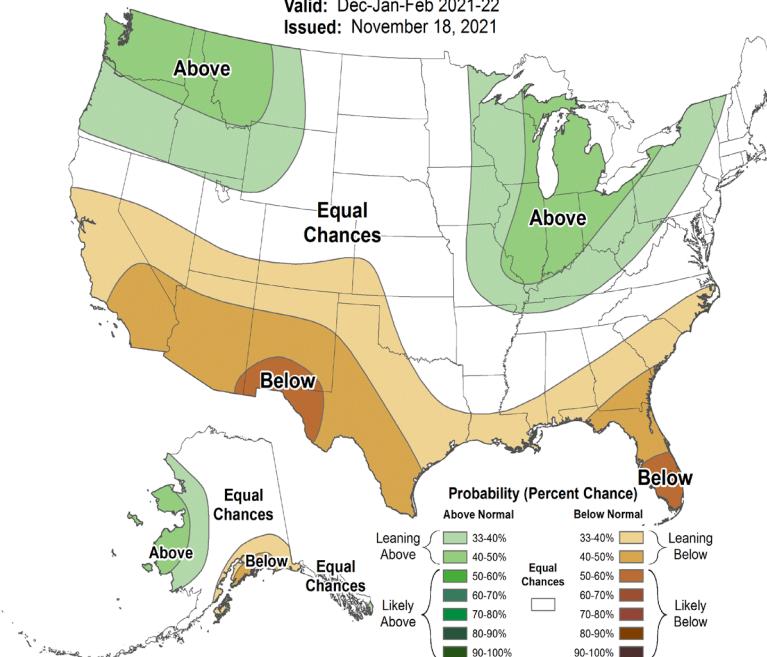
## December 2021 - February 2022

The seasonal outlooks combine the effects of long-term trends, soil moisture, and, when appropriate, ENSO.

### Precipitation

#### Seasonal Precipitation Outlook

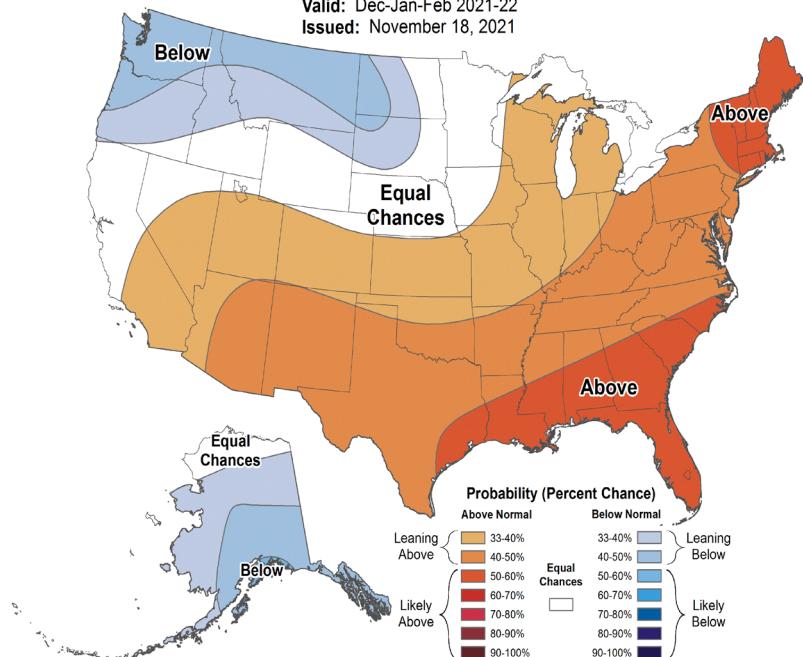
Valid: Dec-Jan-Feb 2021-22  
Issued: November 18, 2021

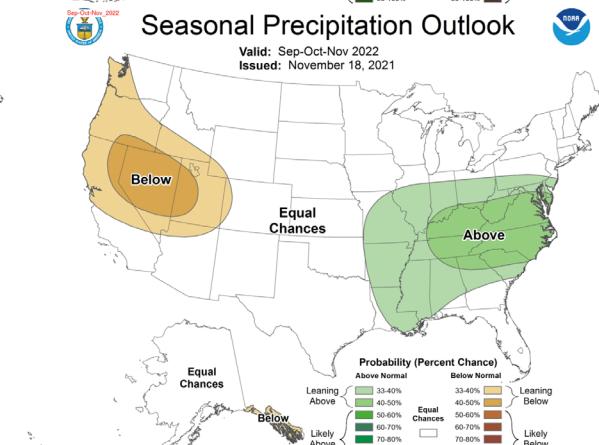
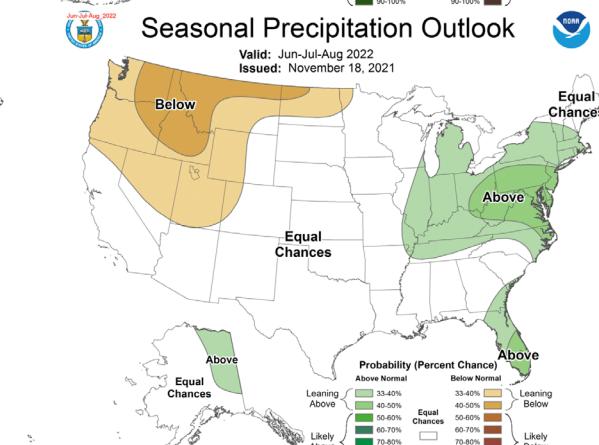
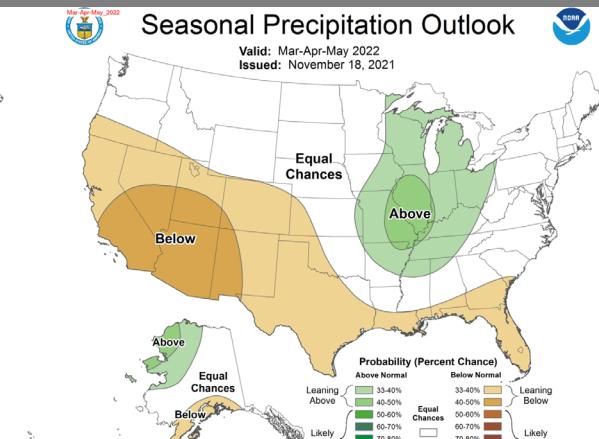
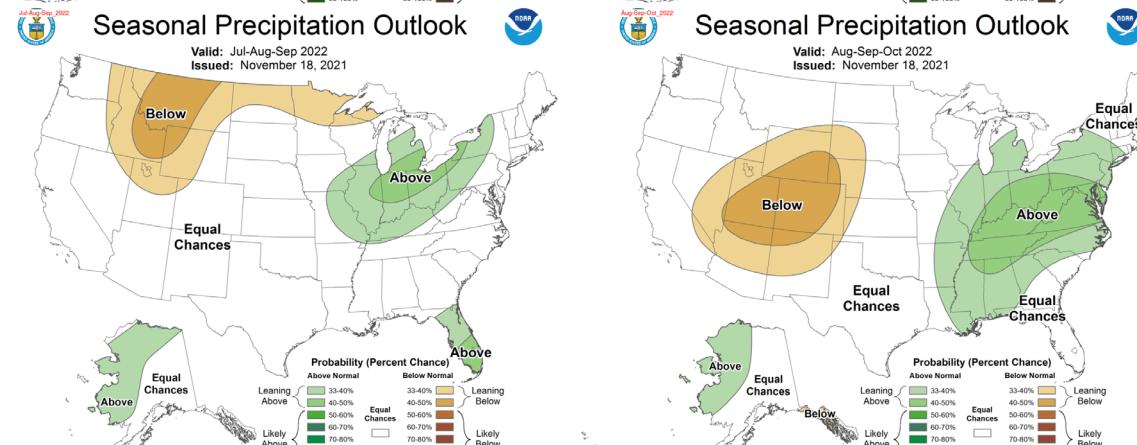
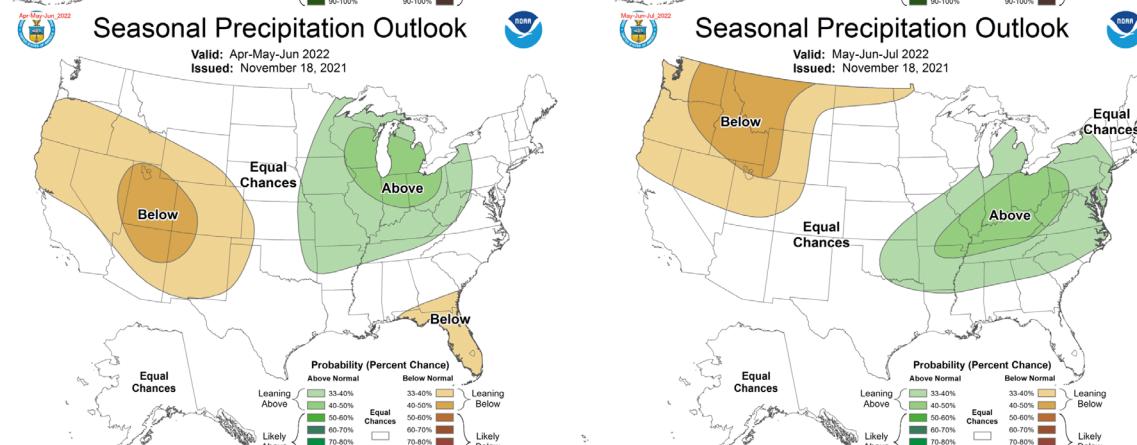
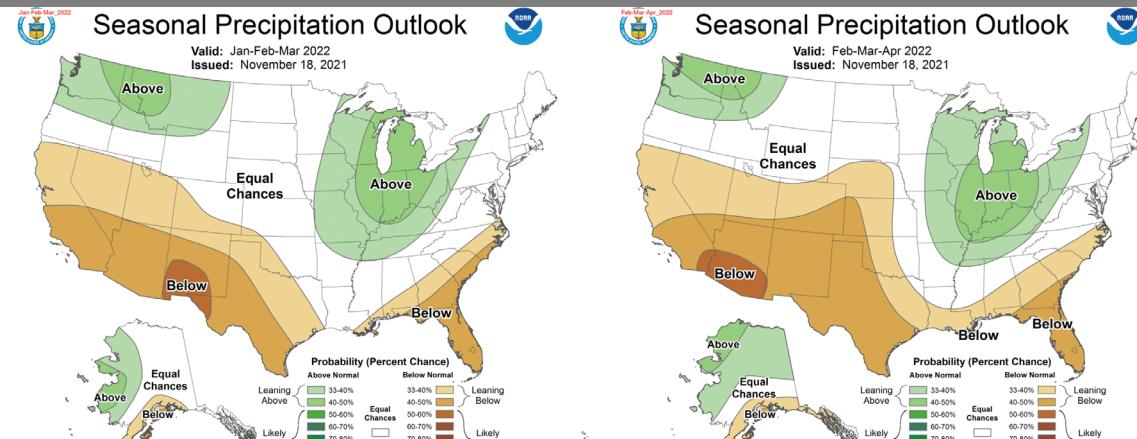
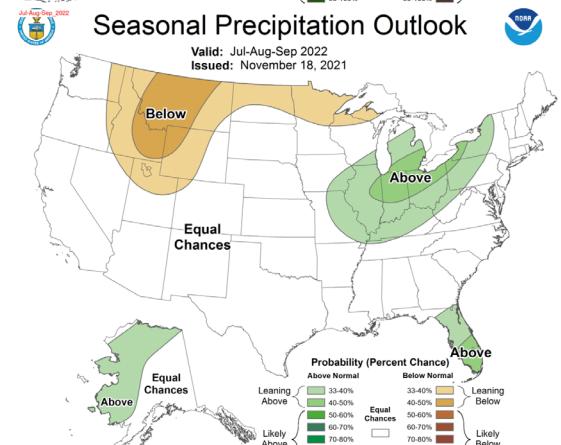
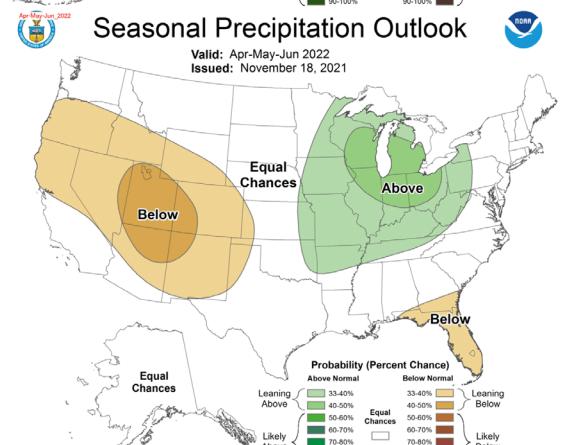
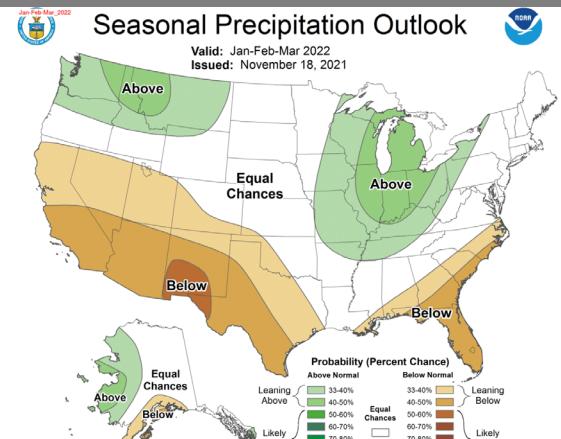


### Temperature

#### Seasonal Temperature Outlook

Valid: Dec-Jan-Feb 2021-22  
Issued: November 18, 2021





# Teleconnections to South Florida

Climate anomalies being related to each other at large distances:

## El Niño Southern Oscillation (ENSO)

El Niño increases the chances of a wetter-than-normal dry season and decreased tropical activity, La Niña increases the chances of a drier-than-normal dry season and increased tropical activity (both have most influence in south Florida from November through March).

## Pacific Decadal Oscillation (PDO)

Increases variations of south Florida dry season rainfall

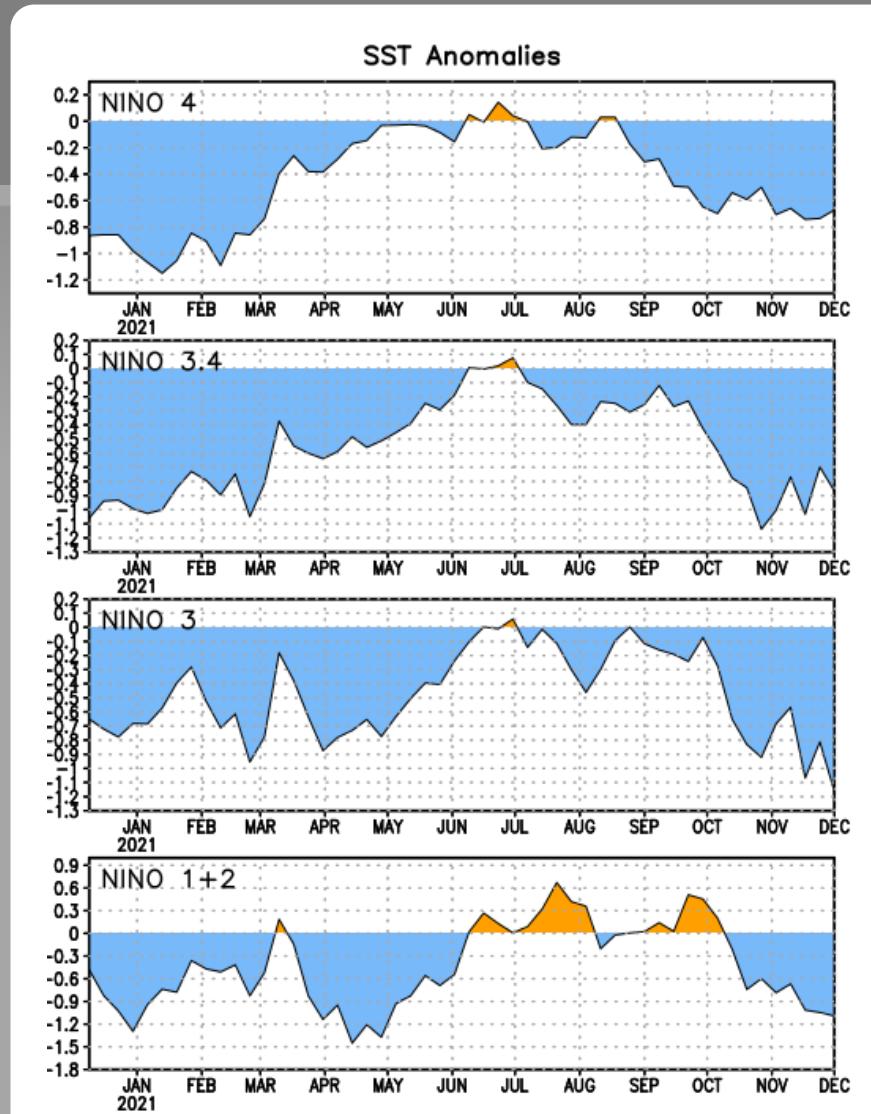
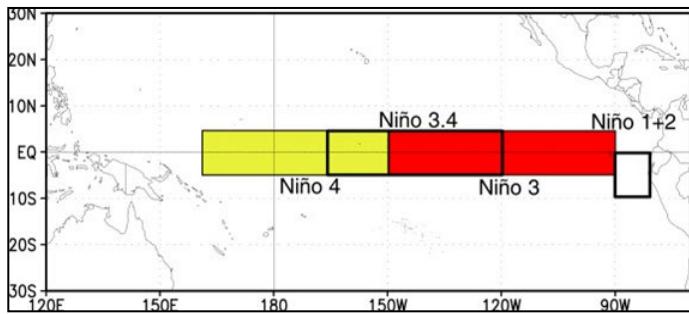
## Atlantic Multidecadal Oscillation (AMO)

Average annual inflow to Lake Okeechobee is nearly 50% greater during the warm phase compared to the cold phase of the AMO, easterly flow toward south Florida affected by phase

# Niño Region SST Departures (°C) Recent Evolution

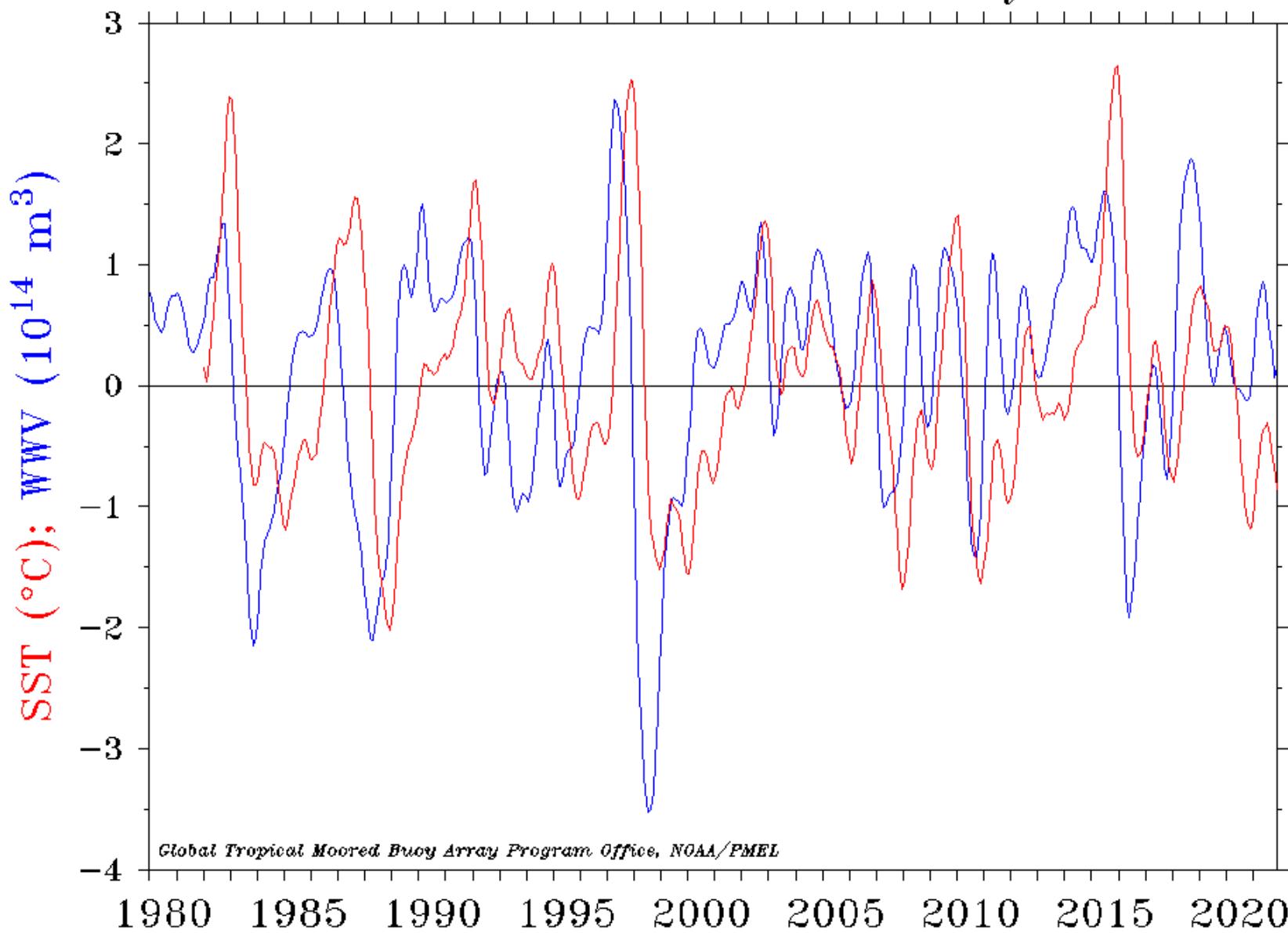
The latest weekly  
SST departures are:

Niño 4	-0.7°C
Niño 3.4	-0.9°C
Niño 3	-1.2°C
Niño 1+2	-1.1°C

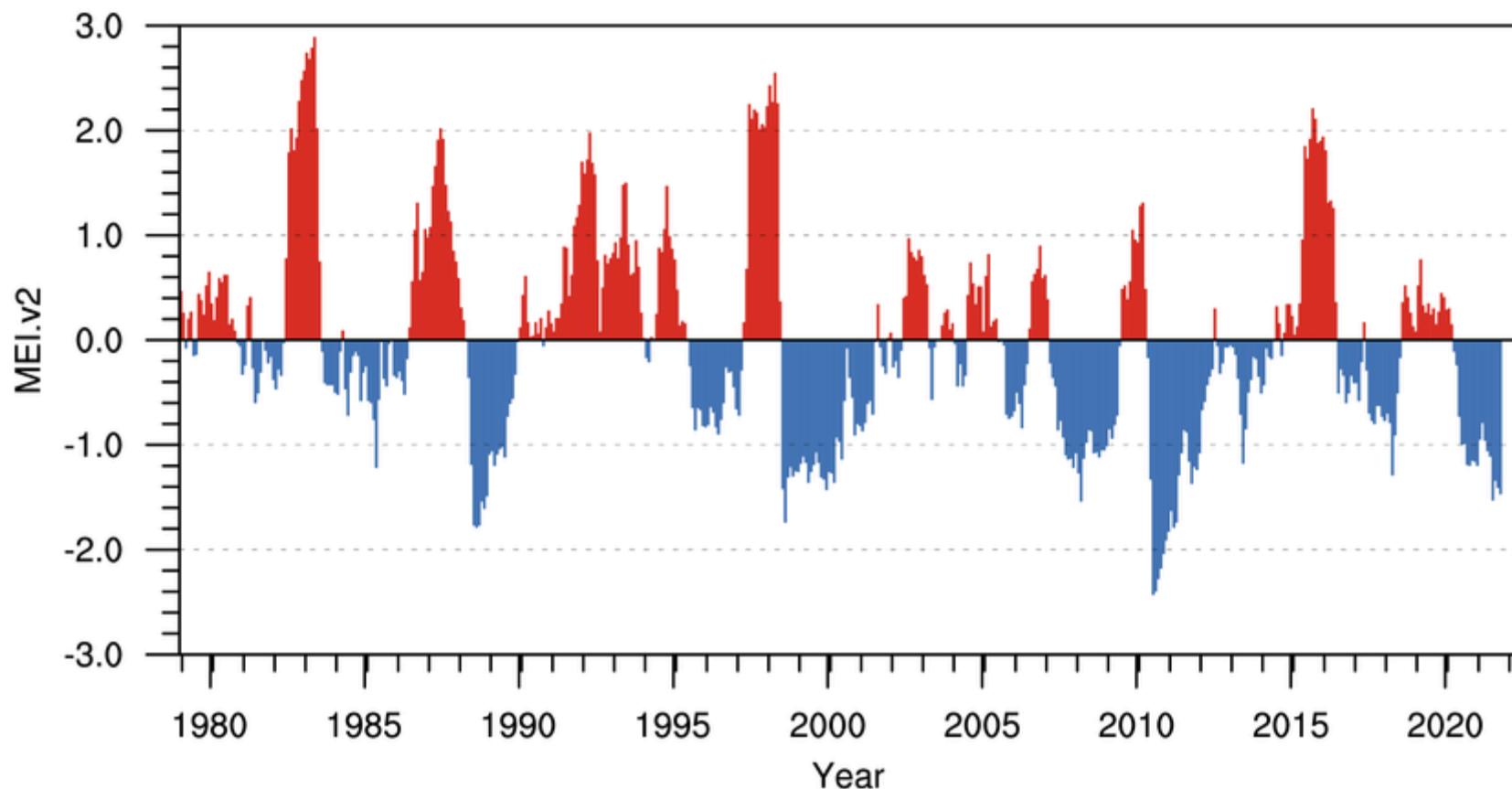


This weekly sea surface temperature data is based on OISSTv2.1 (Huang et al., 2021).

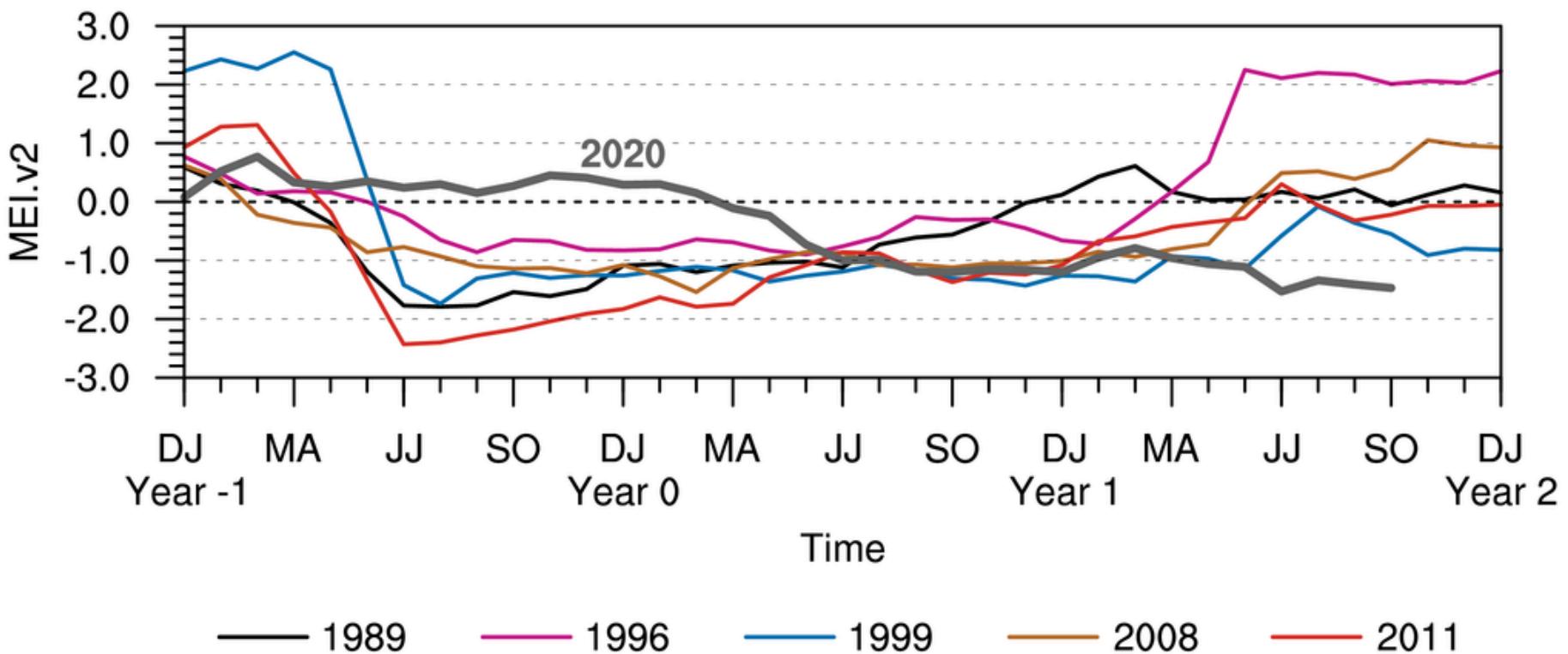
# Warm Water Volume ( $5^{\circ}\text{N}$ – $5^{\circ}\text{S}$ , $120^{\circ}\text{E}$ – $80^{\circ}\text{W}$ ) and NINO 3.4 SST Anomaly



## Multivariate ENSO Index Version 2

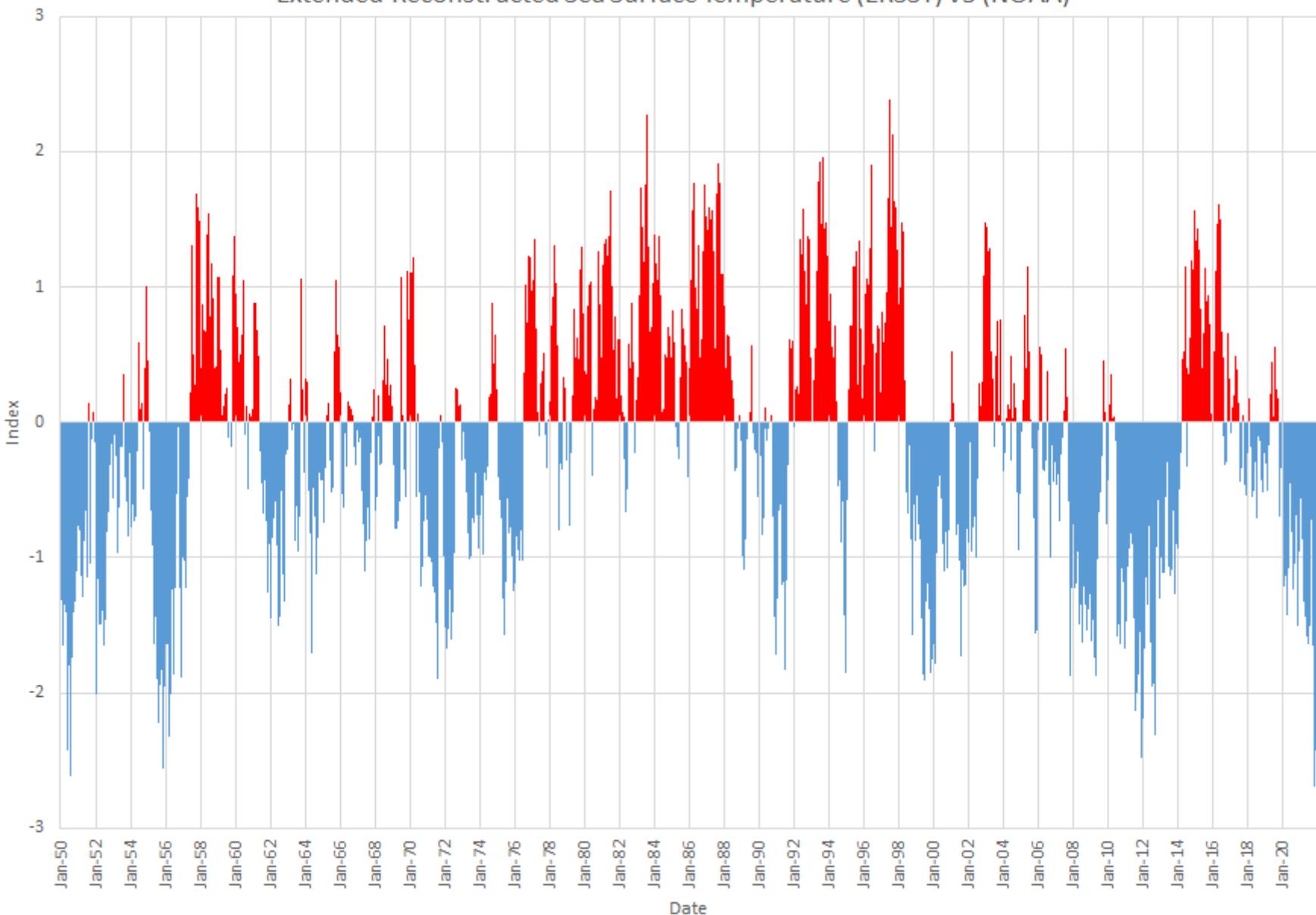


## MEI.v2 Evolution of Current ENSO Event in Historical Context

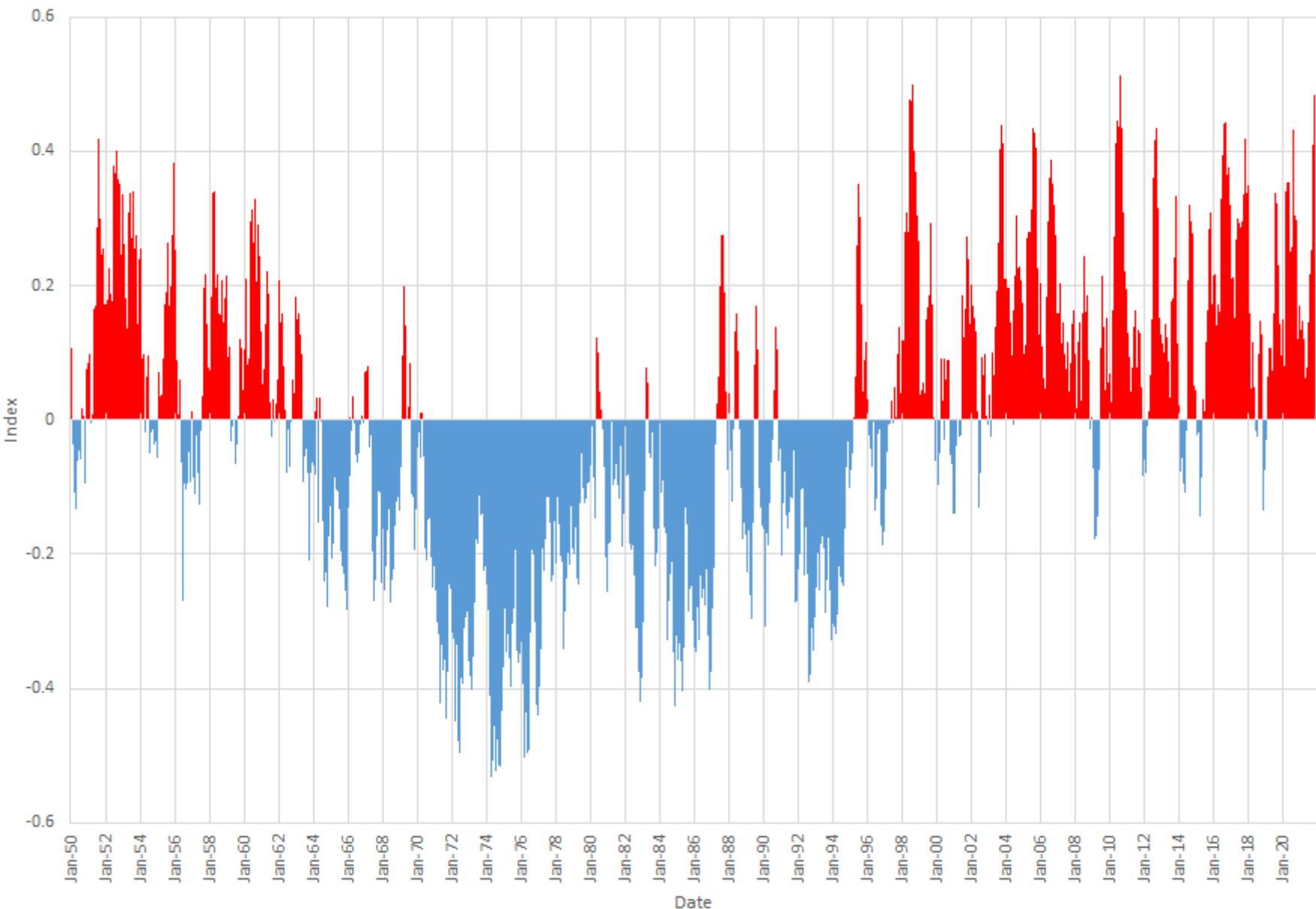


# Pacific Decadal Oscillation

## Extended Reconstructed Sea Surface Temperature (ERSST) v5 (NOAA)



## Index of the North Atlantic Temperatures (AMO) from Kaplan Extended SST V2 (NOAA)

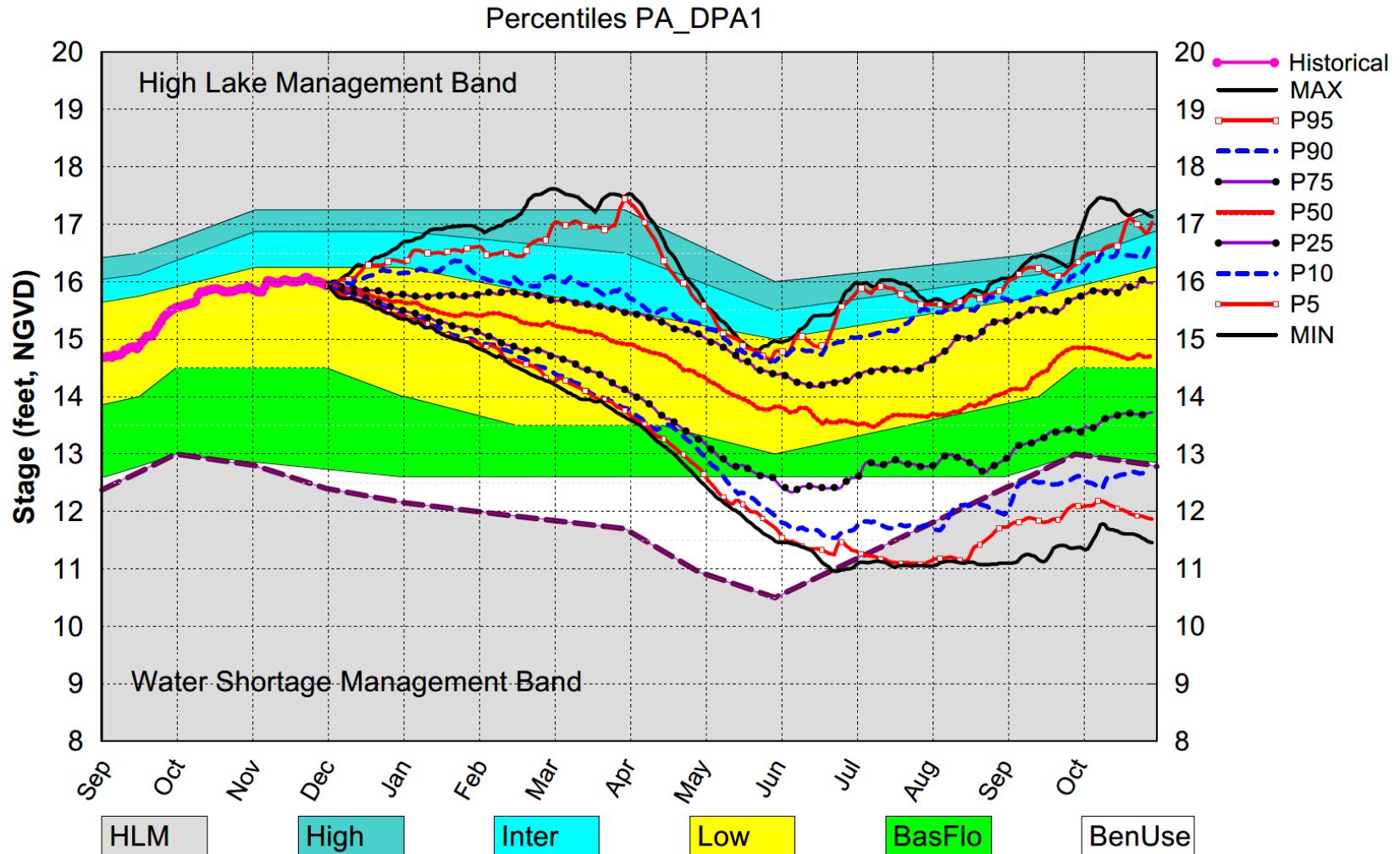


# December DPA Assumptions

- The December 1, 2021 Dynamic Position Analysis (DPA) simulation is based on historical climatic conditions spanning the period 1965-2005. This DPA posting is made with the South Florida Water Management Model (SFWMM) v6.7.4 (Tamiami Trail) which includes the following improvement(s):
  - Improvements to include the Combined Operational Plan (COP)
- The December 1, 2021 DPA resets the initial stages for Lake Okeechobee (LOK) and the Water Conservation Areas (WCAs) on November 1<sup>st</sup> of each year of the DPA simulation and conditions the simulation to real time data during November to achieve real time stages on December 1<sup>st</sup> for LOK and WCAs.
- The Lake Okeechobee operations follow the Lake Okeechobee Regulation Schedule (LORS2008). Modeling assumptions are consistent with modeling performed for LORS2008 Supplemental Environmental Impact Statement (SEIS).
- LOK Temporary Forward Pump operations will be in place, whenever necessary, to improve water supply deliveries from LOK under low LOK stages.
- STA surface area values are modified to reflect current flowways under operation. STA depths are maintained to a minimum of 6 inches using Lake Okeechobee releases.

## PRELIMINARY RESULTS

# Lake Okeechobee SFWMM Dec 2021 Position Analysis

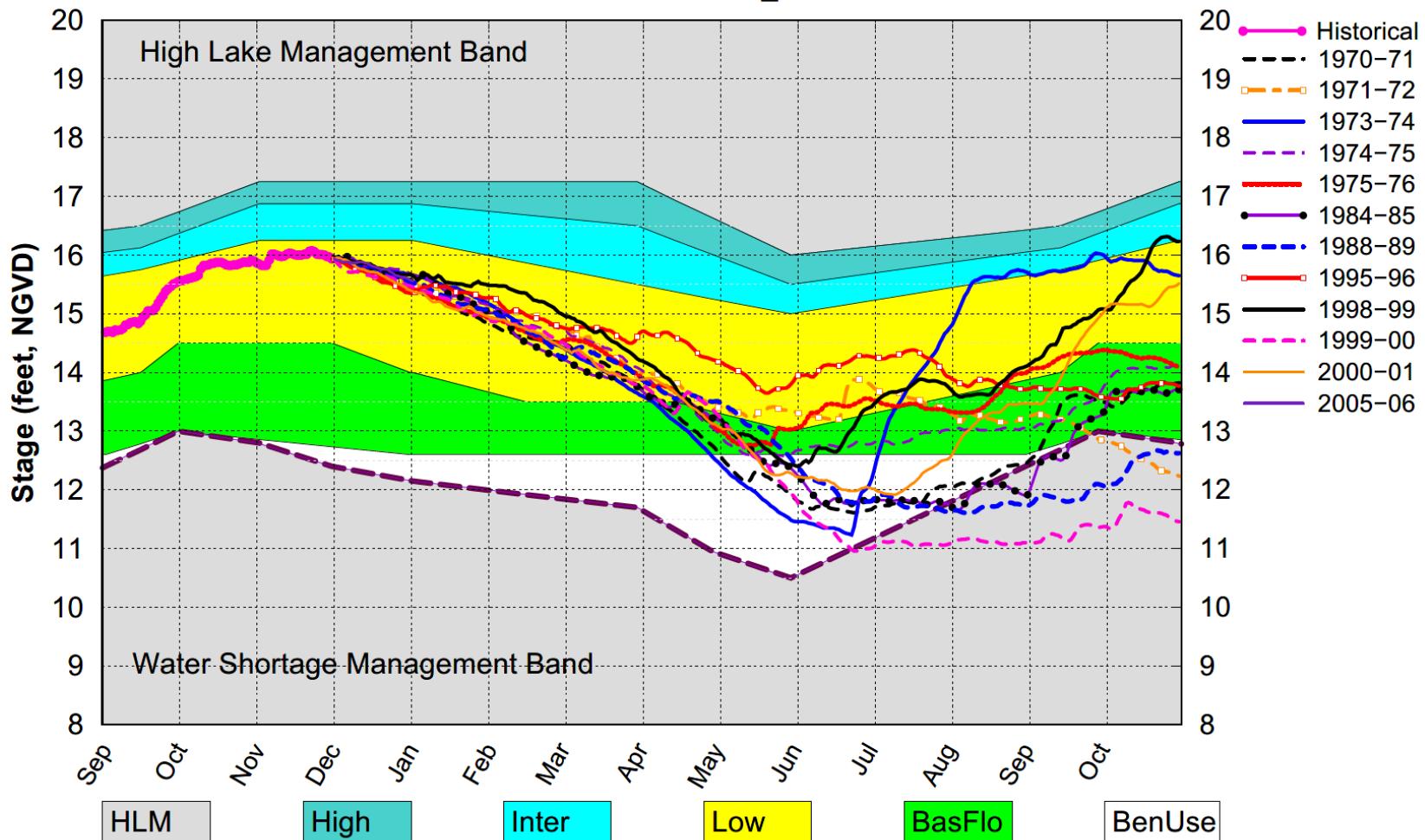


(See assumptions on the Position Analysis Results website)

## PRELIMINARY RESULTS

Lake Okeechobee SFWMM Dec 2021 Position Analysis

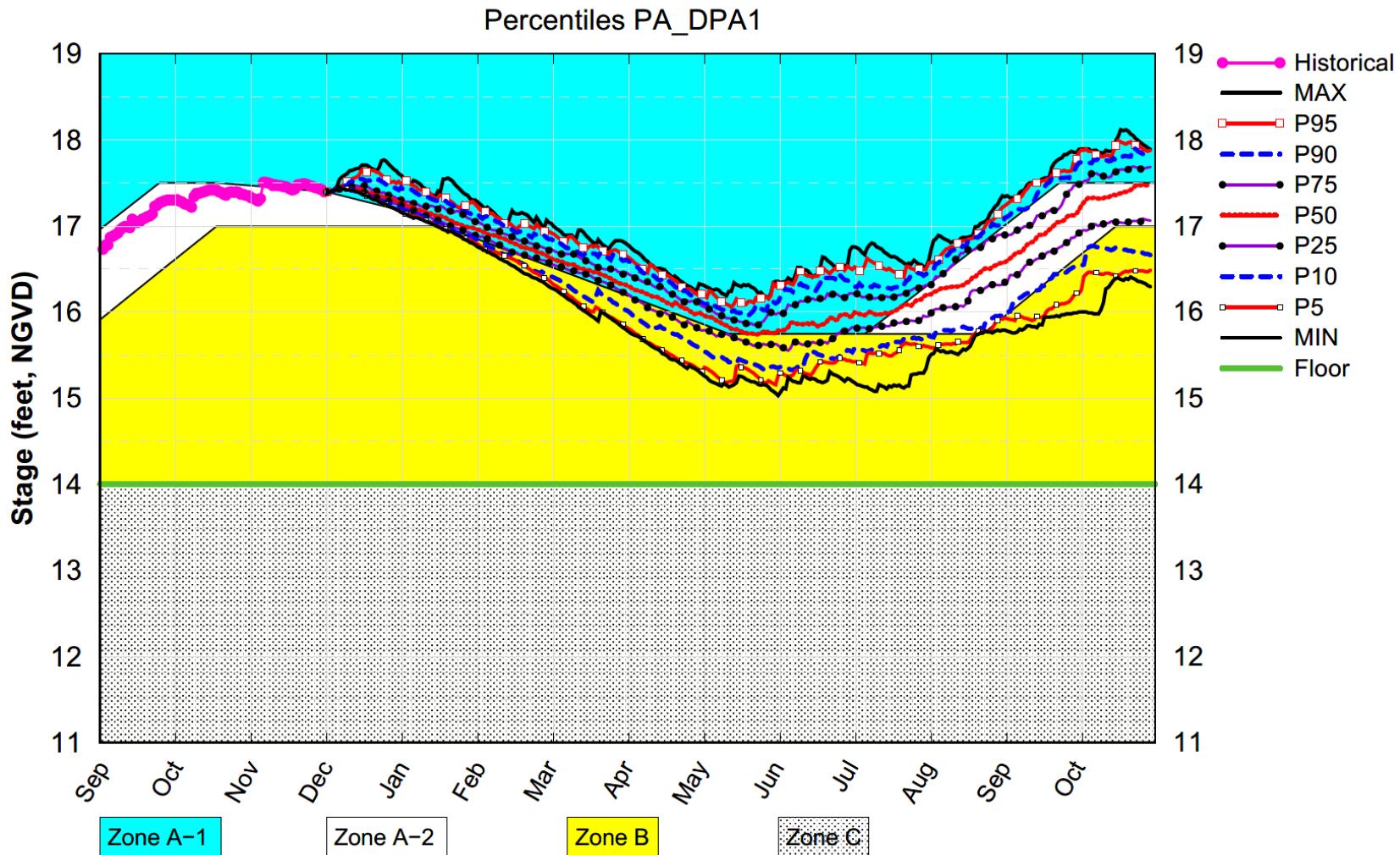
## All La Nina Years Plot PA DPA1



(See assumptions on the Position Analysis Results website)

# PRELIMINARY RESULTS

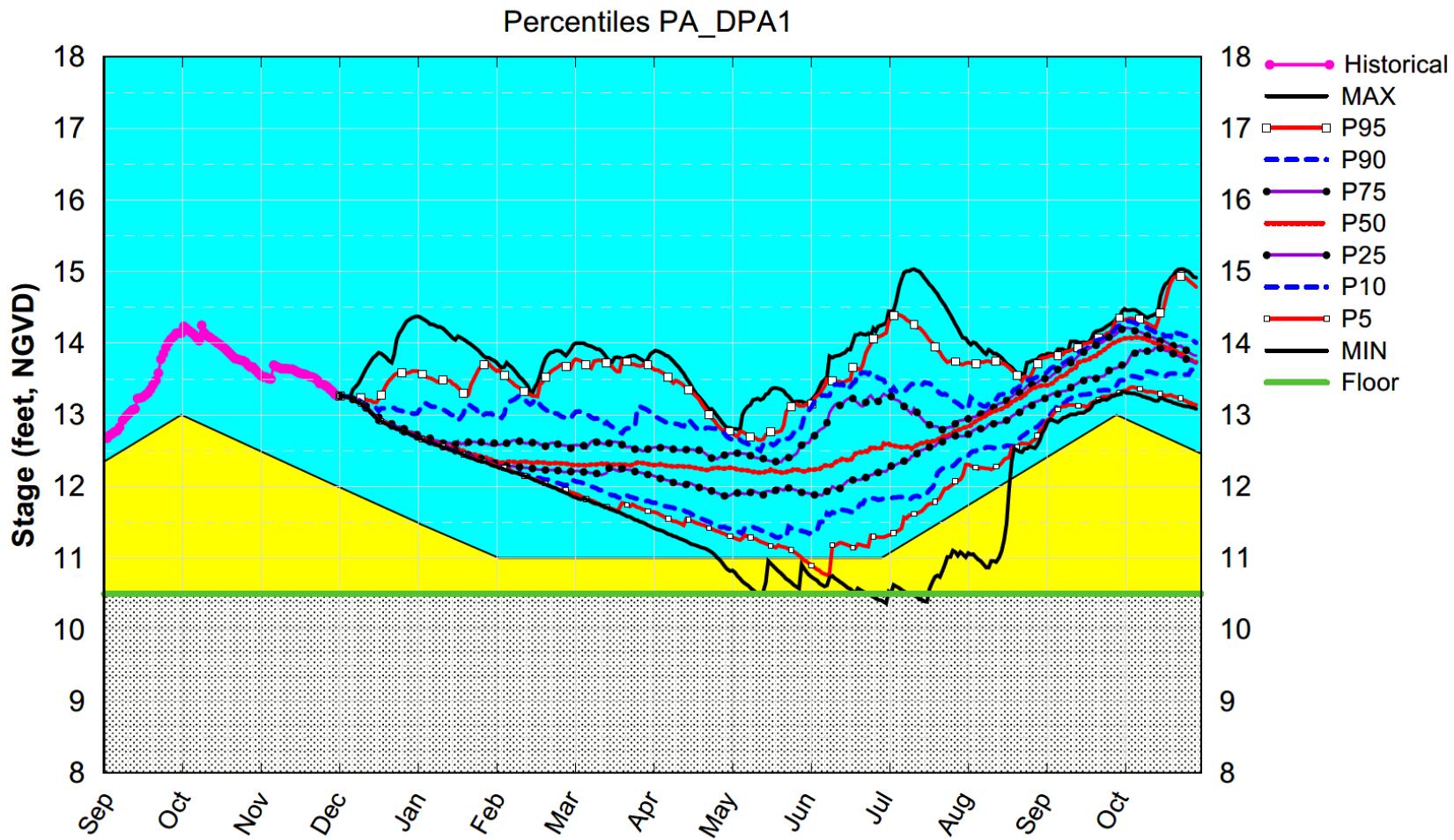
## WCA1 SFWMM Dec 2021 Position Analysis



(See assumptions on the Position Analysis Results website)

## PRELIMINARY RESULTS

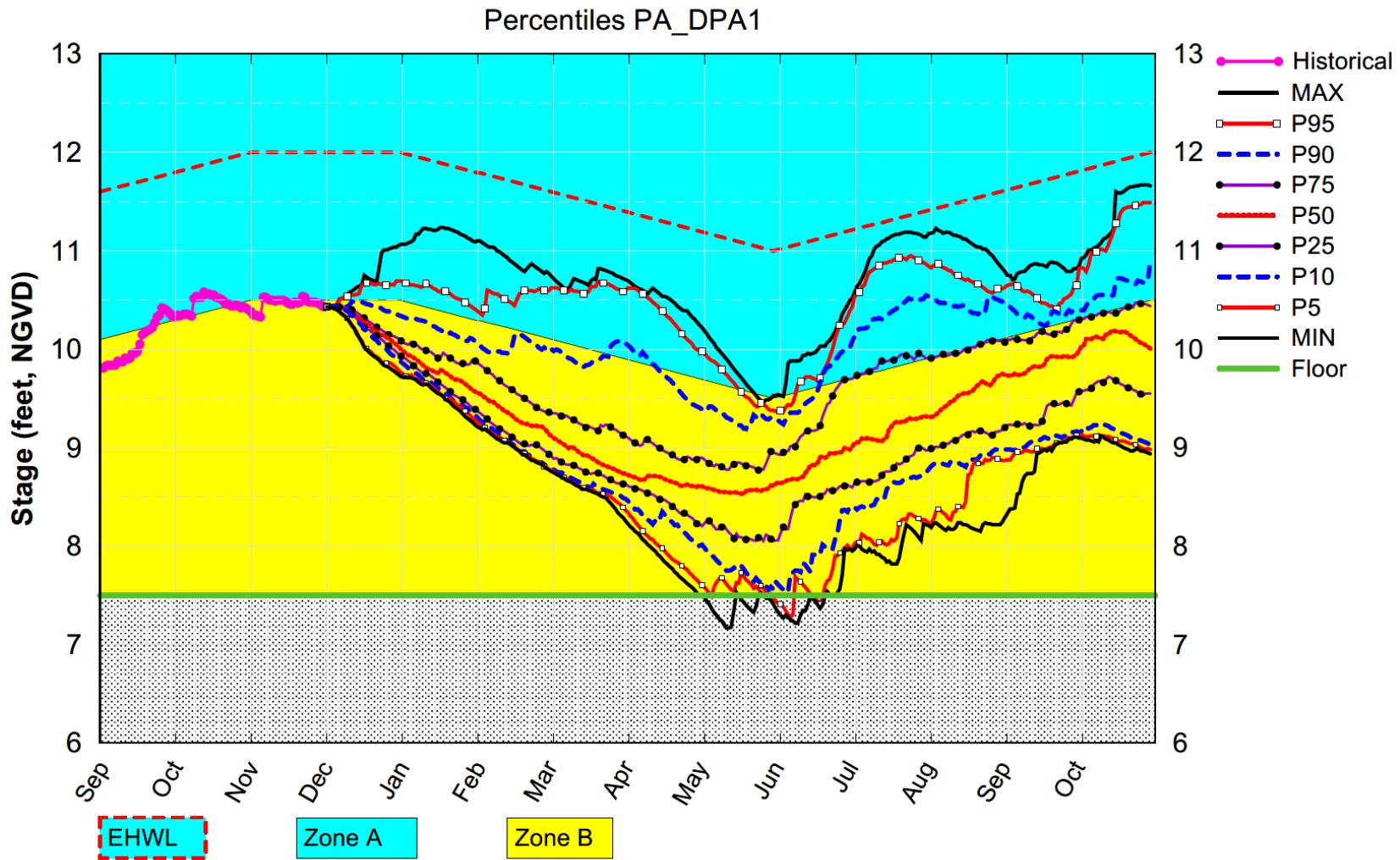
### WCA2A SFWMM Dec 2021 Position Analysis



(See assumptions on the Position Analysis Results website)

## PRELIMINARY RESULTS

### WCA3A SFWMM Dec 2021 Position Analysis



(See assumptions on the Position Analysis Results website)